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STATUS REVIEW UPDATE OF

Goodyera repens

LEWIS AND CLARK NATIONAL FOREST
MONTANA

prepared by

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Challenge Cost-Share Project

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I. INTRODUCTION

This report is an update of an earlier status review of Goodyera repens (Achuff and Schassberger 1991) which is a sensitive species that occurs on the Lewis and Clark National Forest. Additional field surveys were conducted in the summer of 1991 by personnel from the Montana Natural Heritage Program and the Lewis and Clark National Forest.

These surveys located 12 new populations of Goodyera repens on the Lewis and Clark National Forest and updated observations of three other populations.

II. SPECIES INFORMATION

A. REVIEW OF PRESENT STATUS

1. **FEDERAL STATUS:** Goodyera repens is currently listed as a sensitive species by Region 1 of the U.S. Forest Service. It has no status under the Endangered Species Act.
2. **STATE STATUS:** Goodyera repens is currently ranked by the Montana Heritage Program as an S2 species (imperiled because of rarity). It is also considered sensitive within the state (Lesica and Shelly 1991).

B. UPDATE OF GEOGRAPHICAL DISTRIBUTION IN MONTANA

The twelve populations of Goodyera repens newly discovered in 1991 (Table 1) are all essentially within the previously known range of the species in Montana. Eleven of the occurrences are in the eastern portion of the Little Belt Mountains near other previously known sites. The twelfth occurrence (023) is on the north side of the Big Snowy Mountains about nine miles west of a previously known occurrence (005). Detailed information on these new occurrences is in section V.

C. POPULATION MONITORING

1. KNOWN POPULATIONS RESURVEYED IN 1991

The Lost Fork Judith River occurrence (004) was partially re-examined in 1991. More than 1000 plants were seen on 8 August 1991, about 50 of which were flowering.

The Bear Gulch occurrence (008) was resurveyed in 1991 and greatly extended to the southwest along

the canyon. The population as now delimited contains an estimated several thousand plants and occupies more than 280 acres.

The West Fork Hopley Creek occurrence (018) was also revisited in 1991. The population and habitat were as previously reported in 1990.

2. NEW POPULATIONS LOCATED IN 1991

Twelve populations of Goodyera repens were newly discovered in 1991 (Table 1). Eleven of the occurrences are in the eastern portion of the Little Belt Mountains near other previously known sites. The twelfth occurrence (023) is on the north side of the Big Snowy Mountains about nine miles west of a previously known occurrence (005). All occurrences are on the Lewis and Clark National Forest. Detailed information on these new occurrences is in section V.

3. AREAS SURVEYED BUT SPECIES NOT LOCATED

T10N R10E S12 NW $\frac{1}{4}$
T10N R10E S11 SW $\frac{1}{4}$

T11N R11E S10 NE $\frac{1}{4}$
T11N R11E S11 NW $\frac{1}{4}$

T11N R18E S05 SE $\frac{1}{4}$
T11N R18E S07 NE $\frac{1}{4}$
T11N R18E S08 N $\frac{1}{2}$
T11N R18E S09 NE $\frac{1}{4}$

T12N R11E S03 SE $\frac{1}{4}$

T12N R18E S01 W $\frac{1}{2}$
T12N R18E S02 NE $\frac{1}{4}$

T13N R18E S35 W $\frac{1}{2}$

Table 1. Goodyera repens populations newly located in 1991.

Fergus County

Occurrence number: 023
Site name: Crystal Cascades
Areal extent: <1 acre
Population size: 4 ramets

Judith Basin County

Occurrence number: 022
Site name: Dry Pole Canyon
Areal extent: extends ca. 1 mile along the canyon
Population size: 4000-6000 ramets

Occurrence number: 025
Site name: Smith Creek
Areal extent: 3 acres
Population size: ca. 500 ramets

Occurrence number: 026
Site name: Dry Wolf
Areal extent: <1 acre
Population size: 1 ramet

Occurrence number: 027
Site name: Yogo Creek
Areal extent: >10 acres
Population size: few thousand ramets

Occurrence number: 028
Site name: Russell Point
Areal extent: 165 acres
Population size: 7000 ramets

Occurrence number: 029
Site name: Mount High
Areal extent: 12 acres
Population size: 360 ramets

Occurrence number: 030
Site name: Rocky Gulch
Areal extent: 2 acres
Population size: 50 ramets

Occurrence number: 031
Site name: Trask Gulch
Areal extent: 57 acres
Population size: 620 ramets

Table 1. (cont.)

Meagher County

Occurrence number: 024
Site name: Basin Creek
Areal extent: <1 acre
Population size: 22 ramets

Wheatland County

Occurrence number: 019
Site name: East Fork Hopley Creek
Areal extent: extends ca. 2.5 miles along the canyon
Population size: 6000-7500 ramets

Occurrence number: 020
Site name: East Fork Haymaker Creek
Areal extent: extends ca. 1.5 miles along the canyon
Population size: 6000 ramets

Occurrence number: 021
Site name: Iron Springs Coulee
Areal extent: extends ca. $\frac{1}{4}$ mile along the canyon
Population size: >1000 ramets

D. HABITAT RELATIONSHIPS

Most element occurrence records of Goodyera repens note that it occurs in moss mats, however the species of mosses and their habitat ecology have not been noted. Observations of element occurrences 019-022 in the Little Belt Mountains showed that Goodyera repens is predominantly associated with mosses growing on litter or organic matter, including Hylocomium splendens, Pleurozium schreberi and Timmia austriaca. Also frequently associated with these species is the thallose lichen Peltigera aphthosa.

Goodyera repens itself roots predominantly in organic matter and is seldom associated with mosses such as Thuidium abietinum or Tortula ruralis which tend to grow more directly on rock or soil. These moss species may be in the vicinity of Goodyera repens occurrences since all are associated with calcareous parent materials but at the microhabitat level they are seldom together.

It was also observed that Goodyera repens has a more restricted ecological amplitude or habitat range south of the crest of the Little Belt Mountains than north of it. In the southern part of the mountain range, Goodyera repens is associated narrowly with mesic north and east aspects, and narrow canyon bottoms, whereas in the northern part it occupies sites that are more exposed and in wider valleys. The cause of this is unknown but may be due to mesoclimatic differences.

III. ASSESSMENT AND RECOMMENDATIONS

A. THREATS TO NEWLY LOCATED POPULATIONS

1. **GRAZING:** Although cattle use the general area around Goodyera repens populations, there seems to be little use or damage to the sites occupied by the plants.
2. **TIMBER HARVEST:** The following sites are currently threatened by proposed or on-going timber harvest:

Smith Creek (025)
Russell Point (028)
Mount High (029)
Rocky Gulch (030)

B. RE-EVALUATION OF CONSERVATION STATUS

In light of the discovery of 12 new populations of Goodyera repens in 1991, which brings the total number of occurrences to 31, the Heritage Program status of this species as S2 in Montana needs to be re-evaluated.

Goodyera repens appears to be fairly common in the eastern part of the Little Belt Mountains with several populations numbering more than 5000 plants. The full extent of many populations is not known, many areas of suitable habitat have not been adequately surveyed, and additional or larger populations will likely be discovered. However, the species is currently known only from two areas of Montana - the Little Belt Mountains and Big Snowy Mountains of central Montana and a single site in northern Glacier National Park close to the Canadian border. In addition, the vulnerability of Goodyera repens with the harvest of old-growth forests needs to be considered.

Taken together, these factors indicate that the status of Goodyera repens should be revised to S3 (rare or locally abundant in a restricted range, or vulnerable to extirpation, generally 21-50 occurrences).

C. PROPOSALS FOR FUTURE STUDIES

1. Further field surveys of potential habitat: Additional field surveys should be done in central Montana in portions of the Lewis and Clark National Forest in the Little Belt Mountains, the Snowy Mountains, and the Castle Mountains. The westward extent of Goodyera repens in the Little Belt Mountains has not been determined nor has the full extent of many currently-known populations been determined. This more complete information is required for the management guide recommended below.
2. Monitoring studies to assess population condition and status: Monitoring studies are needed at several locations to assess population dynamics and the effects of habitat alteration by timber harvest or fire. This is needed particularly for several populations that are currently or potentially in stands subject to harvesting.

3. Prepare management guide: A management guide should be prepared for Goodyera repens to better evaluate its conservation status and provide guidance to managers. This has been proposed as a challenge cost-share project between the Lewis and Clark National Forest and the Montana Natural Heritage Program for 1992-1993.

IV. LITERATURE CITED

- Achuff, P.L. 1991. Plant species of special concern. Montana Natural Heritage Program, Helena, Montana. 20 pp.
- Achuff, P.L. and L. Schassberger. 1991. Status review of Goodyera repens, U.S. Forest Service - Region 1, Lewis and Clark National Forest, Montana. Montana Natural Heritage Program report to Lewis and Clark National Forest, Great Falls, Montana. 52 pp.
- Lesica, P. and J.S. Shelly. 1991. Sensitive, threatened and endangered vascular plants of Montana. Montana Natural Heritage Program Occasional Publication 1: 88 pp.

V. ELEMENT OCCURRENCE PRINT-OUTS AND MAPS

Occurrence number: 004

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: LOST FORK JUDITH RIVER
EO rank: A
EO rank comments: ROADLESS AREA ALLOCATED TO
RECREATION/GRAZING.

County: JUDITH BASIN USGS quadrangle: ETTIEN SPRING

Township: 012N Range: 010E Section: 14 Precision: S
Township-range comments: SE4,13SW4NW4,23W2,22SW4,27W2,34NW4.

Survey date: 1989-08-03	Elevation: 5800
First observation: 1989	Slope/aspect: 15-35% / N, NW
Last observation: 1991-08-08	Size (acres): 30

Location:

LITTLE BELT MOUNTAINS, LOST FORK JUDITH RIVER, CA. 12 MILES SOUTHWEST
OF SAPPHIRE VILLAGE.

Element occurrence data:

1991: ONLY PORTION OF POPULATION IN SECTION 14 SEEN, CA. 50 PLANTS IN
FLOWER 8 AUG; 1001-10,000 RAMETS IN 12 SUBPOPULATIONS. 1989:
FLOWERING. PLANTS OFTEN IN CLUSTERS OF 3 TO 6 INDIVIDUALS.

General site description:

PLANTS FOUND ON WELL-DRAINED MID-SLOPES AND RIDGES, WITH FILTERED
LIGHT IN OLDER DOUGLAS-FIR FOREST. DOUGLAS-FIR AGE CA. 200 YRS;
LODGEPOLE PINE AGE CA. 180 YRS. ASSOCIATED VEGETATION INCLUDES:
PSEUDOTSUGA MENZIESII, PINUS CONTORTA, PINUS ALBICAULIS, CALAMAGROSTIS
RUBESCENS, ASTRAGALUS MISER, SPIRAEA BETULIFOLIA, JUNIPERUS COMMUNIS,
AND ARCTOSTAPHYLOS UVA-URSI. PLANTS OFTEN OCCUR WITH PELTIGERA
APHTHOSA (LICHEN).

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, JUDITH RANGER DISTRICT

Comments:

VOUCHER-PHILLIPS, H.W. (890801-1), 1989, MRC. SEE ORIGINAL ECODATA AND
HERITAGE SURVEY FORMS (ON FILE AT MONTANA NATURAL HERITAGE PROGRAM)
FOR ADDITIONAL ASSOCIATED SPECIES. ALSO SURVEYED BY DANA FIELD (1989
AND 1991).

Information source:

PHILLIPS, H.W. LEWIS AND CLARK NATIONAL FOREST, P.O. BOX 871, 1101
15TH STREET NORTH, GREAT FALLS, MT.

Element Occurrence Record
Goodyera repens

10

Occurrence number: 008

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: BEAR GULCH
EO rank: A
EO rank comments: EXCELLENT HABITAT, POPULATION IN GOOD
CONDITION.

County: JUDITH BASIN

USGS quadrangle: BANDBOX MOUNTAIN

Township: 014N Range: 010E Section: 12 Precision: S
Township-range comments: SE4,13NW4,14SE4,23W2.

Survey date: 1990-08-08 Elevation: 6200
First observation: 1990 Slope/aspect: 0-30% / NNW
Last observation: 1991-08-23 Size (acres): 280+

Location:

LITTLE BELT MOUNTAINS; HEADWATERS OF SOUTH FORK OF RUNNING WOLF CREEK,
CA. 11 MILES SOUTHWEST OF STANFORD.

Element occurrence data:

1991: SEVERAL THOUSAND PLANTS OVER EXTENDED AREA. 1990: CA. 28 PLANTS
SCATTERED OVER LARGE AREA.

General site description:

OLD GROWTH PICEA ENGELMANNII/PSEUDOTSUGA MENZIESII FOREST;
PICEA/LINNAEA BOREALIS HABITAT TYPE. PLANTS ROOTED IN MOSS WITH
SENECIO TRIANGULARIS, LINNAEA BOREALIS, ARNICA CORDIFOLIA, SAXIFRAGA
ODONTOLOMA, THALICTRUM SPP., SPIRAEA BETULIFOLIA, CORNUS STOLONIFERA,
AND ACER GLABRUM. PLANTS OCCUR IN SHADED LOCATIONS.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, JUDITH RANGER DISTRICT

Comments:

THIS IS AN EXCELLENT OLD-GROWTH FOREST SITE. VOUCHER - SCHASSBERGER,
L.A. (415), 1990.

Information source:

SENSITIVE PLANT COORDINATOR, LEWIS AND CLARK NATIONAL FOREST, 1101
15TH STREET NORTH, GREAT FALLS, MT 59923.

Element Occurrence Record
Goodyera repens

11

Occurrence number: 019

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: EAST FORK HOPLEY CREEK
EO rank: B
EO rank comments: CATTLE GRAZING IN AREA.

County: WHEATLAND

USGS quadrangle: JELLISON PLACE

Township: 011N Range: 013E Section: 27 Precision: S
Township-range comments: NE4;21NE4,22SW4,26SW4,16SE4

Survey date: 1991-08-07 Elevation: 5900
First observation: 1991 Slope/aspect: 5-45% / NORTH
Last observation: 1991-08-07 Size (acres): 0

Location:

LITTLE BELT MOUNTAINS, CA. 20 AIR MILES NORTHWEST OF HARLOWTOWN;
POPULATION EXTENDS ALONG EAST FORK HOPLEY CREEK FROM CA. 1 MILE
NORTHEAST OF JELLISON PLACE NORTHWEST FOR CA. 2.5 MILES.

Element occurrence data:

>1500 FLOWERING PLANTS, ESTIMATE 6000-7500 NON-FLOWERING RAMETS,
PLANTS IN FULL FLOWER ON 7 AUGUST 1991, VIGOR NORMAL.

General site description:

PLANTS IN MESIC, SHADY SITES IN NARROW LIMESTONE CANYON, MOSTLY ON
NORTHERLY ASPECTS, IN PSEUDOTSUGA MENZIESII-PICEA/ ACER
GLABRUM/FEATHER MOSS FOREST. ASSOCIATED SPECIES: ACTAEA RUBRA, RIBES
SETOSUM, VIOLA CANADENSIS, SMILACINA RACEMOSA, PLEUROZIUM SCHREBERI,
TIMMIA AUSTRIACA, PELTIGEA APHTHOSA, MONESES UNIFLORA, LINNAEA
BOREALIS, HYLOCOMIUM SPLENDENS.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, MUSSELSHELL RANGER DISTRICT

Comments:

VOUCHER - ACHUFF, P.L. (5929), 1991, (MONT). POPULATION MAY CONTINUE
FURTHER NORTH UP EAST FORK HOPLEY CREEK; NEEDS FURTHER SURVEY.

Information source:

ACHUFF, P.L. 1991. [FIELD SURVEY OF THE LITTLE BELT AND BIG SNOWY
MOUNTAINS, WHEATLAND, JUDITH BASIN, FERGUS AND GOLDEN VALLEY COUNTIES;
5-9 AUGUST (GOODYERA REPENS)].

Element Occurrence Record
Goodyera repens

12

Occurrence number: 020

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: HAYMAKER NARROWS
EO rank: B
EO rank comments: CATTLE GRAZING IN AREA.

County: WHEATLAND

USGS quadrangle: HAYMAKER NARROWS

Township: 010N Range: 012E Section: 01 Precision: S
Township-range comments: 2NE4,12NE4

Survey date:	1991-08-08	Elevation:	5800
First observation:	1991	Slope/aspect:	5-50% / NORTH, EAST
Last observation:	1991-08-08	Size (acres):	0

Location:

LITTLE BELT MOUNTAINS, CA. 20 AIR MILES NORTHWEST OF HARLOWTON.
POPULATION EXTENDS ALONG EAST FORK HAYMAKER CREEK, FROM HAYMAKER
NARROWS NORTHWEST CA. 1.5 MILES.

Element occurrence data:

ESTIMATE 6000 PLANTS IN SEVERAL ELONGATED SUBPOPULATIONS, PLANTS IN
FULL FLOWER ON 8 AUGUST 1991, VIGOR NORMAL.

General site description:

PLANTS IN MESIC, SHADY SITES IN NARROW LIMESTONE CANYON IN PSEUDOSUGA
MENZIESII/PICEA ACER GLABRUM/FEATHER MOSS FORESTS; ASSOCIATED SPECIES:
RIBES SETOSUM, PYROLA SECUNDA, DISPORUM TRACHYCARPUM, HYLOCOMIUM
SPLENDENS, PLEUROZIUM SCHREBERI, TIMMIA AUSTRIACA, THUIDIUM ABIETINUM,
LINNAEA BOREALIS.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, MUSSELSHELL RANGER DISTRICT

Comments:

VOUCHER - ACHUFF, P.L. (5936), 1991, (MONT). POPULATION MAY EXTEND
FURTHER UP EAST FORK HAYMAKER CREEK; NEEDS FURTHER SURVEY.

Information source:

ACHUFF, P.L. 1991. [FIELD SURVEY OF THE LITTLE BELT AND BIG SNOWY
MOUNTAINS, WHEATLAND, JUDITH BASIN, FERGUS AND GOLDEN VALLEY COUNTIES,
5-9 AUGUST (GOODYERA REPENS)].

Element Occurrence Record
Goodyera repens

13

Occurrence number: 021

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: IRON SPRINGS COULEE
EO rank: A
EO rank comments:

County: WHEATLAND

USGS quadrangle: HAYMAKER NARROWS

Township: 010N Range: 012E Section: 10 Precision: S
Township-range comments: NE4

Survey date: 1991-08-08 Elevation: 6160
First observation: 1991 Slope/aspect: 5-35% / NORTH, EAST
Last observation: 1991-08-08 Size (acres): 0

Location:

LITTLE BELT MOUNTAINS, CA. 20 AIR MILES NORTHWEST OF HARLOWTON,
POPULATION IS CA. 1 MILE NORTH OF IRON SPRINGS, ALONG IRON SPRINGS
COULEE.

Element occurrence data:

ESTIMATE >1000 PLANTS ALONG CA. 0.25 MILE OF CANYON, PLANTS FLOWERING
ON 8 AUGUST 1991, VIGOR GOOD.

General site description:

PLANTS IN MESIC, SHADY SITES IN NARROW LIMESTONE CANYON, IN
PSEUDOTSUGA MENZIESII/PICEA/ LINNAEA BOREALIS FEATHER MOSS FOREST.
ASSOCIATED SPECIES: SPIRAEA BETULIFOLIA CALAMAGROSTIS RUBESCENS,
GALIUM BOREALE, HYLOCOMIUM SPLENDENS, PLEUROZIUM SCHREBERI, THUIDIUM
ABIETINUM.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, MUSSELSHELL RANGER DISTRICT

Comments:

VOUCHER - ACHUFF, P.L. (5937), 1991, (MONT). POPULATION PROBABLY
EXTENDS FURTHER UP IRON SPRINGS COULEE; NEEDS FURTHER SURVEY.

Information source:

ACHUFF, P.L. 1991. [FIELD SURVEY OF LITTLE AND BIG SNOWY MOUNTAINS,
WHEATLAND, JUDITH BASIN, FERGUS AND GOLDEN VALLEY COUNTIES, 5-9 AUGUST
(GOODYERA REPENS)].

Element Occurrence Record
Goodyera repens

14

Occurrence number: 022

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: DRY POLE CANYON
EO rank: B
EO rank comments: SMALL SUBPOPULATIONS IN PATCHY HABITAT.

County: JUDITH BASIN

USGS quadrangle: INDIAN HILL

Township: 012N Range: 011E Section: 25 Precision: S
Township-range comments: SW4NE4,26NE4,36.

Survey date:	1991-08-09	Elevation:	5600
First observation:	1991	Slope/aspect:	10-55% / N,NE
Last observation:	1991-08-09	Size (acres):	0

Location:

LITTLE BELT MOUNTAINS, CA. 25 MILES SOUTH OF STANFORD. TAKE SOUTH FORK
JUDITH RIVER ROAD (FS RD# 487) TO DRY POLE CANYON.

Element occurrence data:

ESTIMATE 4000-6000 PLANTS. CA. 1400 FLOWERING ON AUGUST 9, 1991;
PLANTS IN SERIES OF SUBPOPULATIONS ALONG CANYON.

General site description:

PLANTS IN MESIC, SHADY SITES ON NORTH AND EAST ASPECTS IN PICEA
ENGELMANNII-PSEUDOTSUGA MENZIESII/SHEPHERDIA CANADENSIS/LINNAEA
BOREALIS/FEATHER MOSS FOREST; SERIES OF SUBPOPULATIONS ALONG LOWER
SLOPE NEAR CREEK AND IN SMALL GULLIES EXTENDING UPHILL. ASSOCIATED
SPECIES: GALIUM BOREALE, FRAGERIA VIRGINIANA, HYLOCOMIUM SPLENDENS,
PLEUROZIUM SCHREBERI, TIMMIA AUSTRIACA, THUIDIUM ABIETINUM, ACER
GLABRUM, PYROLA SECUNDA.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, JUDITH RANGER DISTRICT

Comments:

VOUCHER-ACHUFF, P. L. (5938), 1991, MONT.

Information source:

ACHUFF, P.L. 1991. [FIELD SURVEY OF LITTLE BELT AND BIG SNOWY
MOUNTAINS, WHEATLAND, JUDITH BASIN, FERGUS AND GOLDEN VALLEY COUNTIES,
5-9 AUGUST (GOODYERA REPENS)].

Element Occurrence Record
Goodyera repens

15

Occurrence number: 023

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: CRYSTAL CASCADES
EO rank:
EO rank comments:

County: FERGUS

USGS quadrangle: JUMP OFF PEAK

Township: 012N Range: 018E Section: 20 Precision: G
Township-range comments: NE4

Survey date: 1991-08-31	Elevation: 6200
First observation: 1991	Slope/aspect: 10% / NORTH
Last observation: 1991-08-31	Size (acres): 0

Location:
BIG SNOWY MOUNTAINS, CA. 35 MILES SOUTH OF LEWISTOWN, 1.5 MILES EAST
OF CRYSTAL LAKE, JUST NORTH OF CRYSTAL CASCADES.

Element occurrence data:
FOUR PLANTS OBSERVED.

General site description:
PLANTS IN MOIST, MOSSY FOREST.

Land owner/manager:
LEWIS & CLARK NATIONAL FOREST, JUDITH RANGER DISTRICT

Comments:

Information source:
SENSITIVE PLANT COORDINATOR, LEWIS AND CLARK NATIONAL FOREST, 1101
15TH STREET NORTH, GREAT FALLS, MT 59403.

Element Occurrence Record
Goodyera repens

16

Occurrence number: 024

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: BASIN CREEK
EO rank:
EO rank comments:

County: MEAGHER

USGS quadrangle: RUSSIAN FLAT

Township: 010N Range: 010E Section: 11 Precision: S
Township-range comments: SW4

Survey date: 1991-09-05 Elevation: 5650
First observation: 1991 Slope/aspect: 30% / NORTHEAST
Last observation: 1991-09-05 Size (acres): 1

Location:

LITTLE BELT MOUNTAINS, CA. 20 MILES NORTHWEST OF MARTINSDALE, NEAR
CONFLUENCE OF BASIN AND SPRING CREEKS.

Element occurrence data:

4 FLOWERING STEMS AND 18 ROSETTES ON 5 SEPTEMBER 1991.

General site description:

PLANTS IN PICEA/SENECIO STREPTANTHIFOLIUS HABITAT TYPE, WITH
PSEUDOTSUGA MENZIESII, PINUS CONTORTA, JUNIPERUS COMMUNIS, ANTENNARIA
SPP., PYROLA SECUNDA, DISPORUM TRACHYCARPUM, HEUCHERA SPP.
SYMPHORICARPOS SPP., AND CLEMATIS SPP.; MOSSY UNDERSTORY. PSEUDOTSUGA
MENZIESII CA. 250+ YEARS.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, MUSSELSHELL RANGER DISTRICT

Comments:

Information source:

FIELD, D., LEWIS AND CLARK NATIONAL FOREST, 1101 15TH STREET NORTH,
GREAT FALLS, MT 59403.

Element Occurrence Record
Goodyera repens

17

Occurrence number: 025

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: SMITH CREEK
EO rank: A
EO rank comments: UNDISTURBED AND UNLIKELY TO BE.

County: JUDITH BASIN

USGS quadrangle: RUSSIAN FLAT
DAISY PEAK

Township: 011N Range: 011E Section: 8 Precision: S
Township-range comments: SW4

Survey date:	1991-07-18	Elevation:	5800
First observation:	1991	Slope/aspect:	60% / NNE
Last observation:	1991-07-18	Size (acres):	3

Location:

LITTLE BELT MOUNTAINS, CA. 25 MILES SOUTHWEST OF UTICA, NEAR
CONFLUENCE OF SMITH AND DEADHORSE CREEKS, SOUTH FORK JUDITH RIVER.

Element occurrence data:

CA. 500 PLANTS, IN BUD ON 18 JULY 1991.

General site description:

PLANTS ALONG LOWER SLOPE OF CANYON AT BASE OF LIMESTONE SHALE CLIFFS
IN PICEA/LINNAEA BOREALIS HABITAT TYPE, WITH THALICTRUM OCCIDENTALE,
ARNICA CORDIFOLIA, CLEMATIS COLUMBIANA, RIBES LACUSTRE, ANTENNARIA
RACEMOSA, GALIUM TRIFLORUM, ATHYRIUM FILIX-FEMINA, CALYPSO BULBOSA,
AND PELTIGERA APHTHOSA.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, JUDITH RANGER DISTRICT

Comments:

VOUCHER-FIELD, D. (910718-1), 1991.

Information source:

FIELD, D., LEWIS AND CLARK NATIONAL FOREST, 1101 15TH STREET NORTH,
GREAT FALLS, MT 59403.

Element Occurrence Record
Goodyera repens

18

Occurrence number: 026

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: DRY WOLF
EO rank:
EO rank comments:

County: JUDITH BASIN

USGS quadrangle: WOLF BUTTE

Township: 015N Range: 010E Section: 32 Precision: S
Township-range comments: NW4

Survey date:	1991-07-01	Elevation:	5560
First observation:	1991	Slope/aspect:	15% / NORTHWEST
Last observation:	1991-07-01	Size (acres):	1

Location:

LITTLE BELT MOUNTAINS, CA. 16 MILES SOUTHWEST OF STANFORD, DRY WOLF CREEK, CA. 0.5 MILE NORTHEAST OF DRY WOLF GUARD STATION.

Element occurrence data:

1 PLANT WITH UNOPENED FLOWER BUD ON 1 JUL 91.

General site description:

PLANT IN PSEUDOTSUGA MENZIESII/SPIREA BETULIFOLIA FOREST, WITH MOSSY UNDERSTORY; ASSOCIATED SPECIES ARE CALAMAGROSTIS RUBESCENS AND SYMPHORICARPOS SPP.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, JUDITH RANGER DISTRICT

Comments:

Information source:

SENSITIVE PLANT COORDINATOR, LEWIS AND CLARK NATIONAL FOREST, 1101 15TH STREET NORTH, GREAT FALLS, MT 59403.

Element Occurrence Record
Goodyera repens

19

Occurrence number: 027

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: YOGO CREEK
EO rank:
EO rank comments:

County: JUDITH BASIN

USGS quadrangle: BANDBOX MOUNTAIN

Township: 013N Range: 010E Section: 3 Precision: S
Township-range comments: NW4,4NE4.

Survey date:	1991-08-22	Elevation:	5900
First observation:	1991	Slope/aspect:	60% / NORTH
Last observation:	1991-08-22	Size (acres):	10+

Location:

LITTLE BELT MOUNTAINS, IMMEDIATELY SOUTHEAST OF OLD YOGO SITE.

Element occurrence data:

A FEW THOUSAND PLANTS, MOST FLOWERS TURNING BROWN ON 22 AUGUST 1991.

General site description:

PLANTS AT BASE OF NORTH ASPECT SLOPE ABOVE CREEK, IN PICEA/PSEUDOTSUGA
MENZIESII/FEATHER MOSS FOREST; WITH THALICTRUM OCCIDENTALE, LINNAEA
BOREALIS, DISPORUM TRACHYCARPUM, AND LONICERA UTAHENSIS; OVER
LIMESTONE BEDROCK.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, JUDITH RANGER DISTRICT

Comments:

NOT FULLY SURVEYED.

Information source:

FIELD, D., LEWIS AND CLARK NATIONAL FOREST, 1101 15TH STREET NORTH,
GREAT FALLS, MT 59403.

Element Occurrence Record
Goodyera repens

20

Occurrence number: 028

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: RUSSELL POINT
EO rank:
EO rank comments:

County: JUDITH BASIN

USGS quadrangle: INDIAN HILL
DAISY PEAK

Township: 012N Range: 011E Section: 26 Precision: S
Township-range comments: 34SE4,35;T11NR11W:2W2,3NE4,11NE4.

Survey date: 1991-08-06 Elevation: 5840
First observation: 1991 Slope/aspect: 0-30% / NW, NORTH
Last observation: 1991-09-11 Size (acres): 165

Location:

LITTLE BELT MOUNTAINS, CA. 30 MILES SOUTHWEST OF STANFORD, ALONG SOUTH
FORK JUDITH RIVER, BETWEEN RUSSELL POINT AND TRASK.

Element occurrence data:

CA. 7000 PLANTS IN 11 SUBPOPULATIONS, IN FLOWER AND FRUIT ON 6 AUGUST
1991.

General site description:

PLANTS ON MOIST, LOWER SLOPES IN PICEA/LINNAEA BOREALIS HABITAT TYPE.
ASSOCIATED SPECIES ARE PICEA ENGELMANNII, PSEUDOTSUGA MENZIESII,
JUNIPERUS COMMUNIS, LINNAEA BOREALIS, ARCTOSTAPHYLOS UVA-URSI,
ASTRAGALUS MISER, THALICTRUM OCCIDENTALE, AQUILEGIA BREVISTYLA,
SCHIZACHNE PURPURASCENS, SPIRAEA BETULIFOLIA, ASTER CONSPICUUS, GALIUM
BOREALE, SHEPHERDIA CANADENSIS, AND SYMPHORICARPOS ALBUS. MOSTLY ON
LIMESTONE BEDROCK, BUT ALSO SOME SHALE AND GRANITE.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, JUDITH RANGER DISTRICT

Comments:

Information source:

PHILLIPS, W., LEWIS AND CLARK NATIONAL FOREST, 1101 15TH STREET NORTH,
GREAT FALLS, MT 59403.

Element Occurrence Record
Goodyera repens

21

Occurrence number: 029

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: MOUNT HIGH
EO rank:
EO rank comments:

County: JUDITH BASIN

USGS quadrangle: DAISY PEAK

Township: 011N Range: 011E Section: 14 Precision: S
Township-range comments: S2,13NW4,23NW4.

Survey date:	1991-08-08	Elevation:	6740
First observation:	1991	Slope/aspect:	0-20% / NORTH, NW
Last observation:	1991-10-10	Size (acres):	12

Location:

LITTLE BELT MOUNTAINS, CA. 35 MILES SOUTHWEST OF STANFORD, CA. 1 MILE WEST OF MOUNT HIGH.

Element occurrence data:

CA. 360 PLANTS IN 5 SUBPOPULATIONS, PLANTS FLOWERING AND FRUITING IN AUGUST-SEPTEMBER, 1991.

General site description:

PLANTS IN MOIST MICROSITES, IN SMALL DRAWS AND STREAM TERRACES IN ABIES LASIOCARPA/LINNAEA BOREALIS HABITAT TYPE, WITH MOSSY UNDERSTORY. ASSOCIATED SPECIES ARE PSEUDOTSUGA MENZIESII, PICEA ENGELMANNII, ABIES LASIOCARPA, LINNAEA BOREALIS, THALICTRUM OCCIDENTALE, ARNICA CORDIFOLIA, PYROLA SECUNDA, ACTAEA RUBRA, ASTER CONSPICUUS, AQUILEGIA FLAVESCENS, AND GERANIUM RICHARDSONII. MOSTLY OVER LIMESTONE BEDROCK, BUT ALSO SOME QUARTZITE AND SHALE.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, JUDITH RANGER DISTRICT

Comments:

LOGGING OCCURRING ADJACENT TO SOME SUBPOPULATIONS.

Information source:

PHILLIPS, W., LEWIS AND CLARK NATIONAL FOREST, 1101 15TH STREET NORTH, GREAT FALLS, MT 59403.

Element Occurrence Record
Goodyera repens

22

Occurrence number: 030

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: ROCKY GULCH
EO rank:
EO rank comments:

County: JUDITH BASIN

USGS quadrangle: INDIAN HILL

Township: 012N Range: 011E Section: 1 Precision: S
Township-range comments: SW4

Survey date:	1991-08-09	Elevation:	5040
First observation:	1991	Slope/aspect:	10-30% / NORTH, NW
Last observation:	1991-08-09	Size (acres):	2

Location:

LITTLE BELT MOUNTAINS, CA. 25 MILES SOUTHWEST OF STANFORD, SOUTH FORK
JUDITH RIVER AT CONFLUENCE WITH ROCKY GULCH.

Element occurrence data:

CA. 50 PLANTS IN TWO SUBPOPULATIONS, FLOWERING ON 9 AUGUST 1991.

General site description:

PLANTS IN MOIST, LOWER SLOPE, IN PICEA/LINNAEA BOREALIS HABITAT TYPE;
WITH PSEUDOTSUGA MENZIESII, LINNAEA BOREALIS, ARCTOSTAPHYLOS UVA-URSI,
ACER GLABRUM, AND AQUILEGIA BREVISTYLA, OVER LIMESTONE BEDROCK.

Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, JUDITH RANGER DISTRICT

Comments:

Information source:

PHILLIPS, W., LEWIS AND CLARK NATIONAL FOREST, 1101 15TH STREET NORTH,
GREAT FALLS, MT 59403.

Element Occurrence Record
Goodyera repens

23

Occurrence number: 031

Global rank: G5 Forest Service status: SENSITIVE
State rank: S2 Federal Status:

Survey site name: TRASK GULCH
EO rank:
EO rank comments:

County: JUDITH BASIN

USGS quadrangle: DAISY PEAK

Township: 011N Range: 011E Section: 03 Precision: S
Township-range comments: S2 AND NW4,4NE4;T12NR11E:33SE4.

Survey date:	1991-08-15	Elevation:	5700
First observation:	1991	Slope/aspect:	0-30% / NORTH
Last observation:	1991-09-13	Size (acres):	57

Location:

LITTLE BELT MOUNTAINS, CA. 30 MILES SOUTHWEST OF STANFORD, ALONG SOUTH
FORK JUDITH RIVER, ON WEST SIDE OF TRASK GULCH.

Element occurrence data:

CA. 620 PLANTS IN 5 SUBPOPULATIONS, FLOWERING AND FRUITING IN
AUGUST-MID SEPTEMBER.

General site description:

PLANTS ON MOIST MID AND LOWER SLOPES IN PICEA/LINNAEA BOREALIS AND
ABIES LASIOCARPA/LINNAEA BOREALIS HABITAT TYPES. ASSOCIATED SPECIES
ARE PINUS CONTORTA, PSEUDOTSUGA MENZIESII, PICEA ENGELMANNII, ABIES
LASIOCARPA, LINNAEA BOREALIS, SHEPHERDIA CANADENSIS, ANTENNARIA
RACEMOSA, POPULUS TREMULOIDES, RUBUS IDAEUS, ROSA ACICULARIS,
SCHIZACHNE PURPURASCENS, GERANIUM RICHARDSONII, AND ARCTOSTAPHYLOS
UVA-URSI.

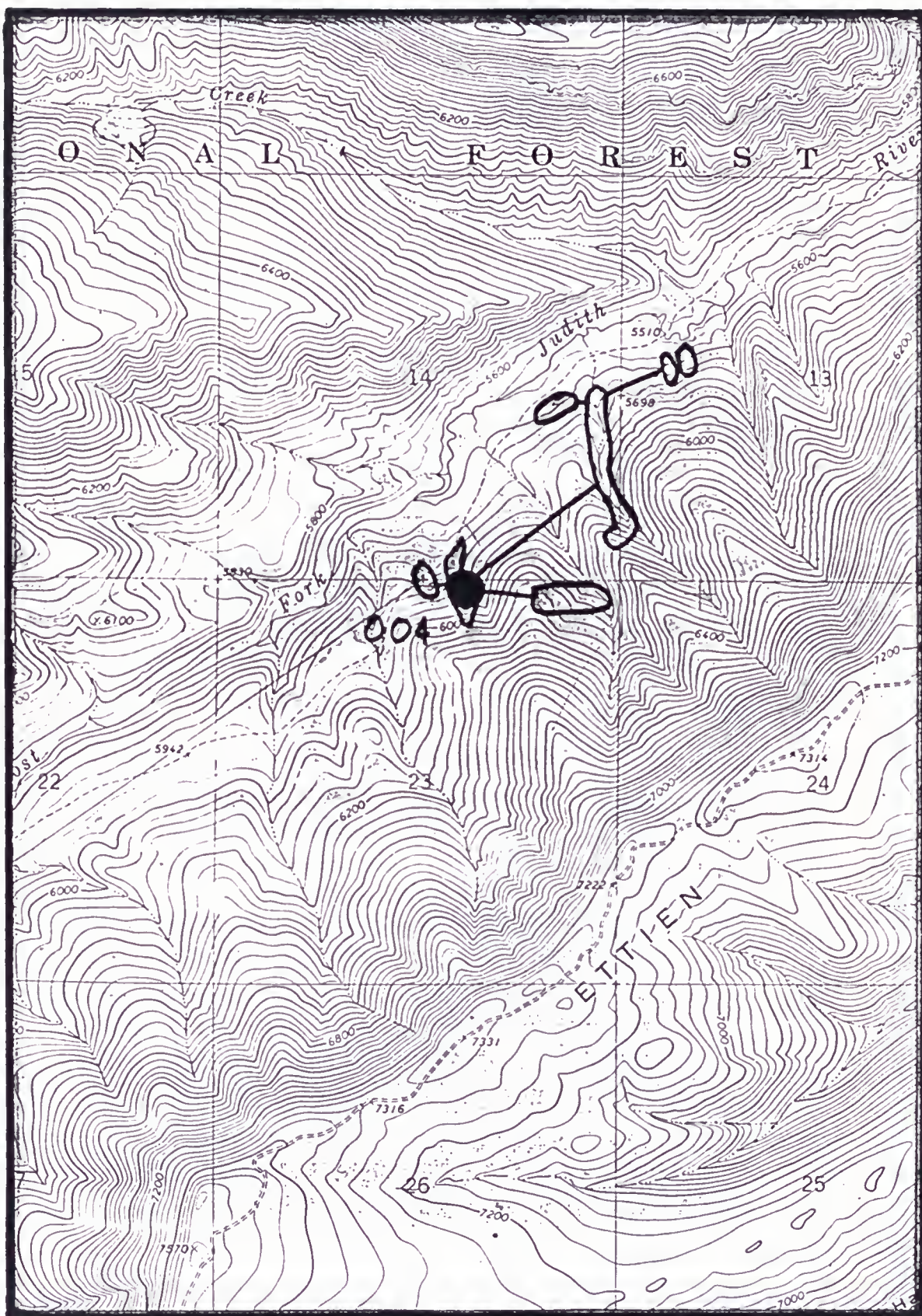
Land owner/manager:

LEWIS & CLARK NATIONAL FOREST, JUDITH RANGER DISTRICT

Comments:

Information source:

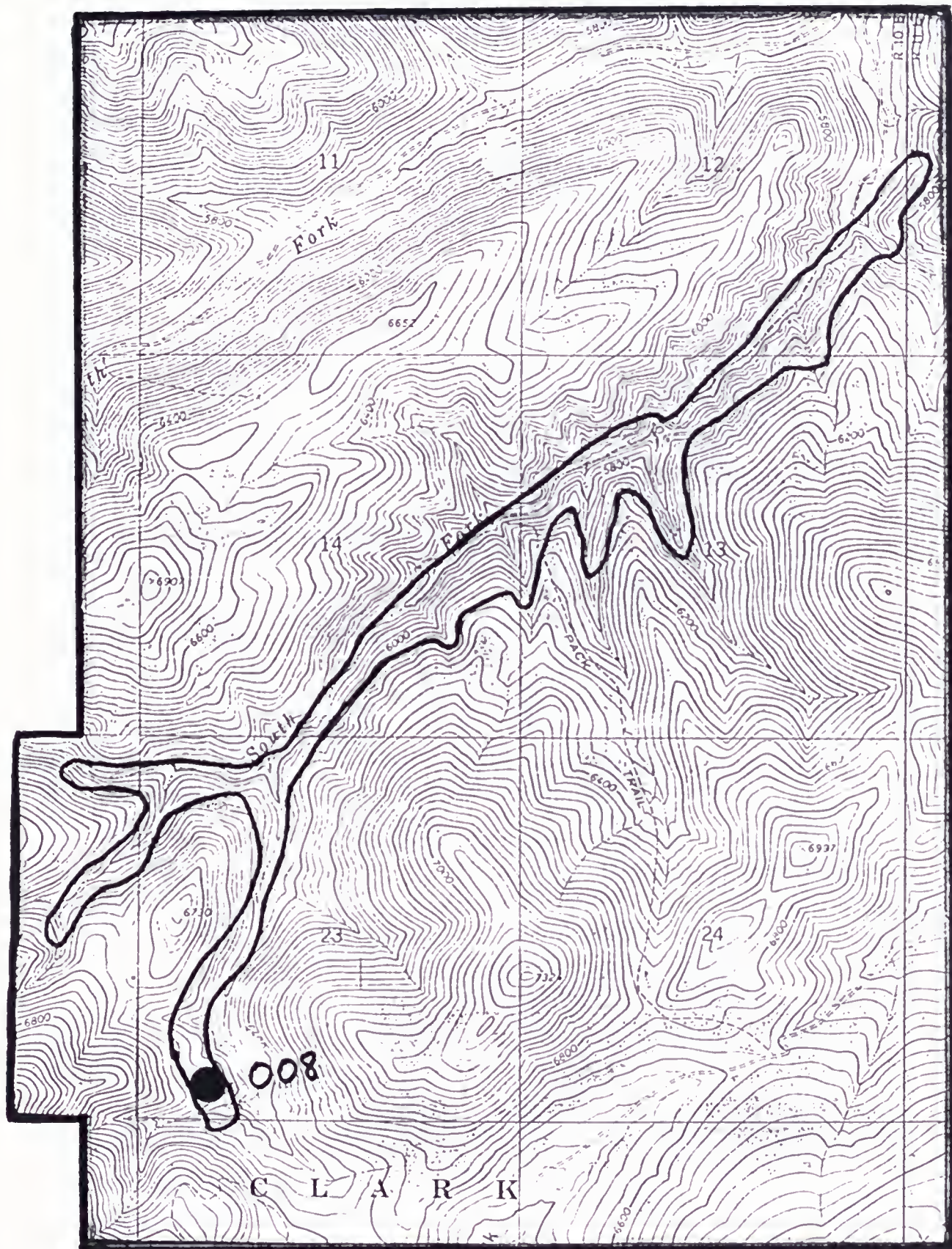
PHILLIPS, W., LEWIS AND CLARK NATIONAL FOREST, 1101 15TH STREET NORTH,
GREAT FALLS, MT 59403.



Goodyera repens

Lost Fork Judith River (004)

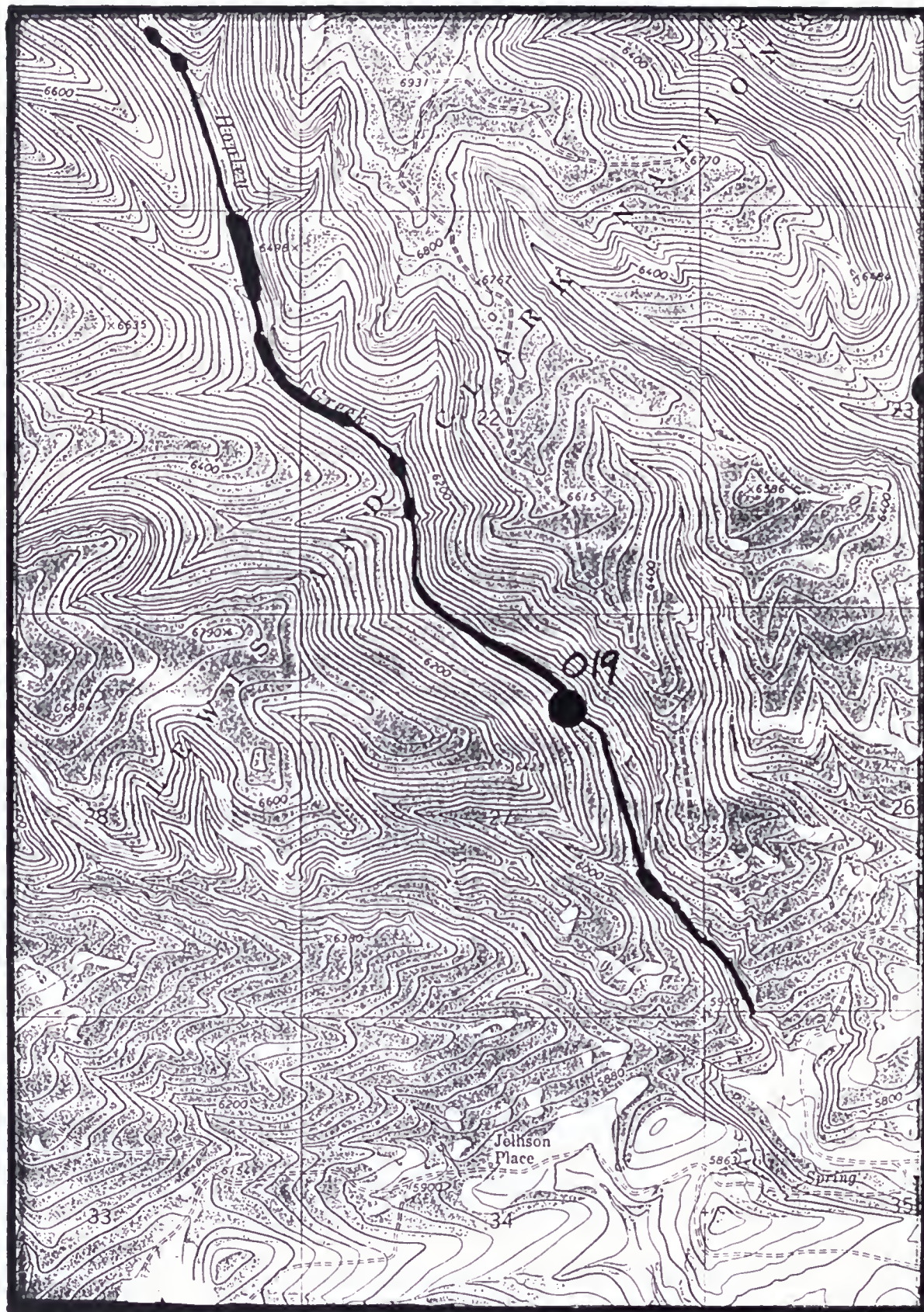
USGS Ettien Springs Quadrangle (7.5')



Goodyera repens

Bear Gulch (008)

USGS Bandbox Mountain Quadrangle (7.5')



Goodyera repens

East Fork Hopley Creek (019)

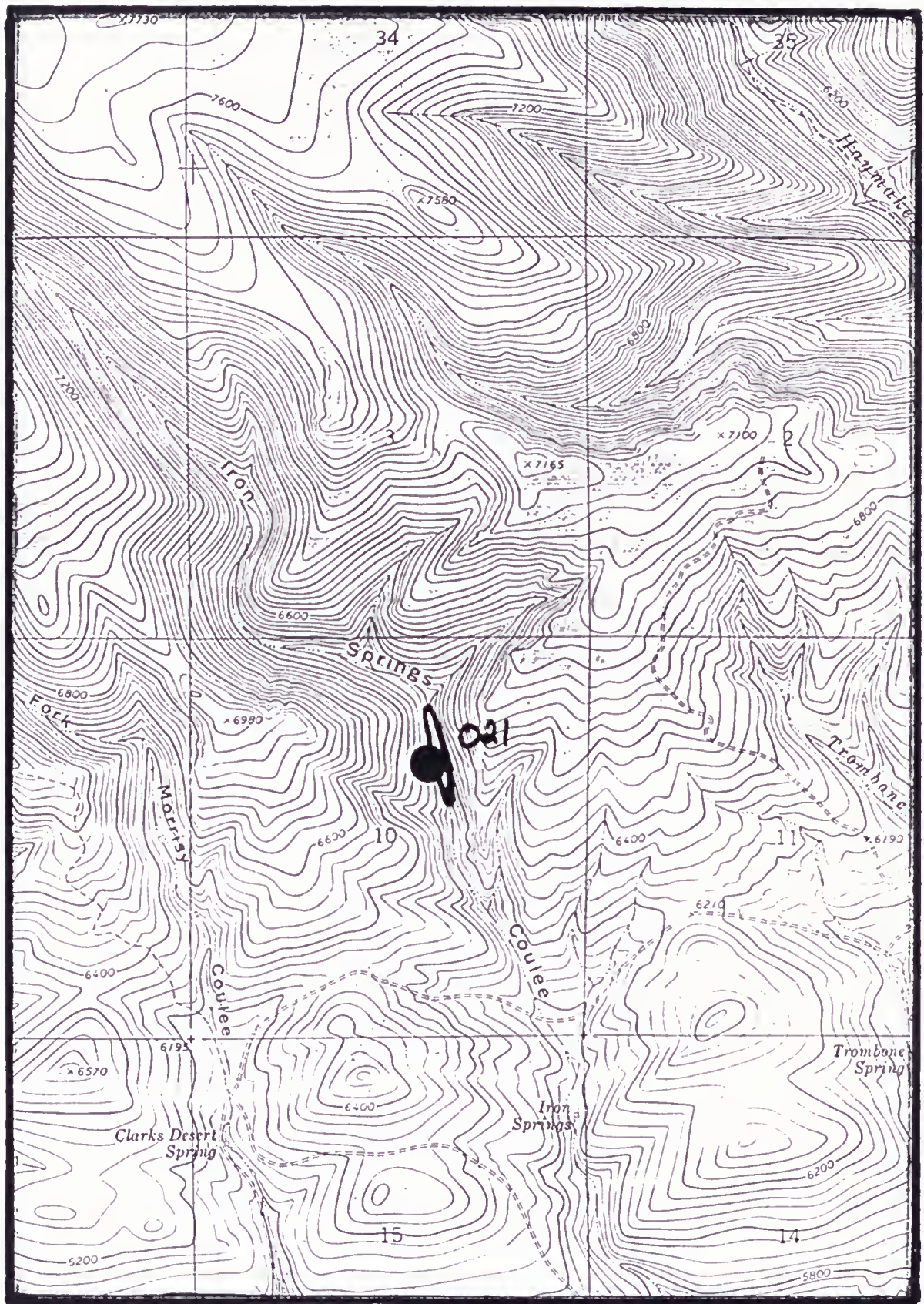
USGS Jellison Place Quadrangle (7.5')



Goodyera repens

Haymaker Narrows (020)

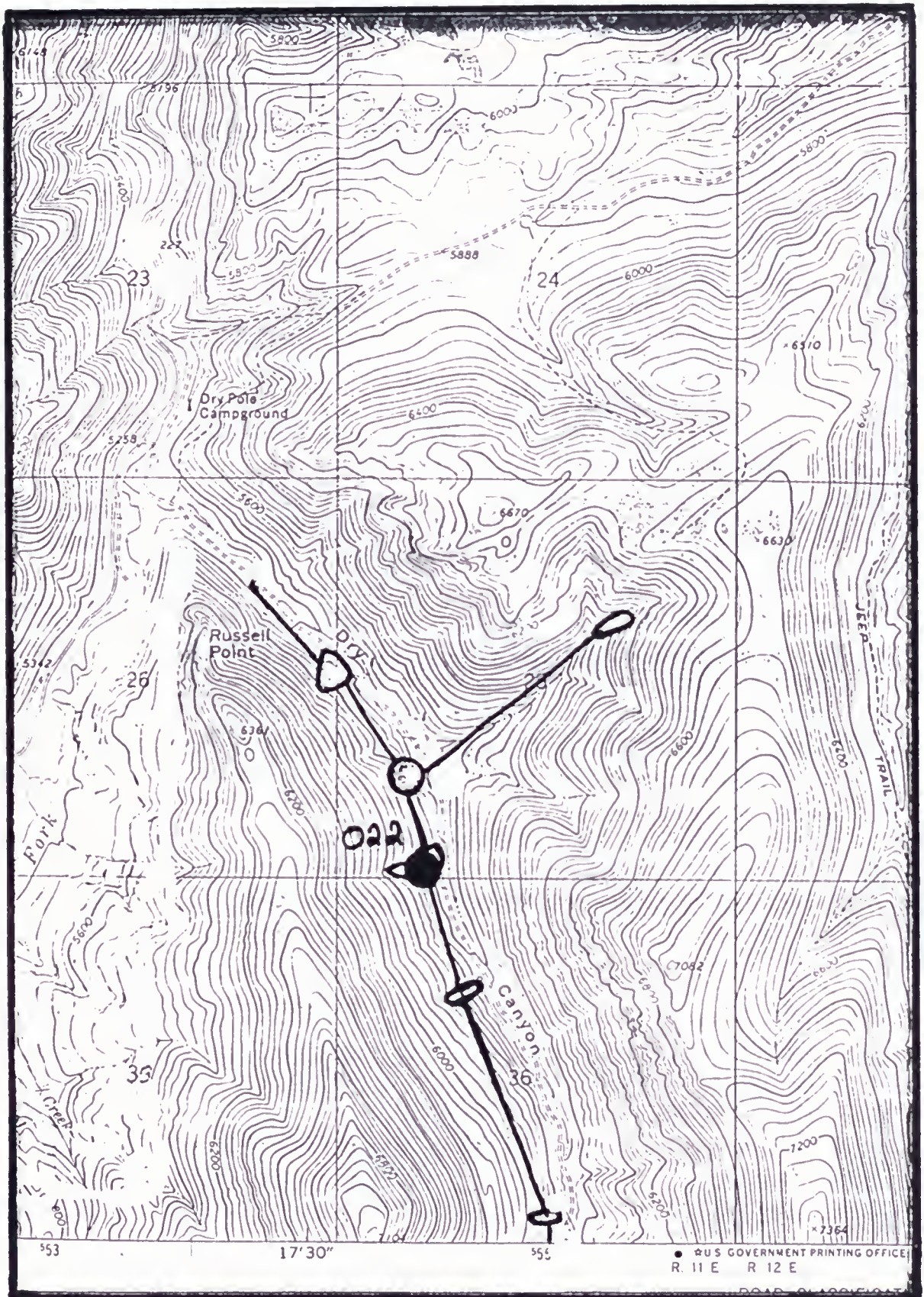
USGS Haymaker Narrows Quadrangle (7.5')



Goodyera repens

Iron Springs Coulee (021)

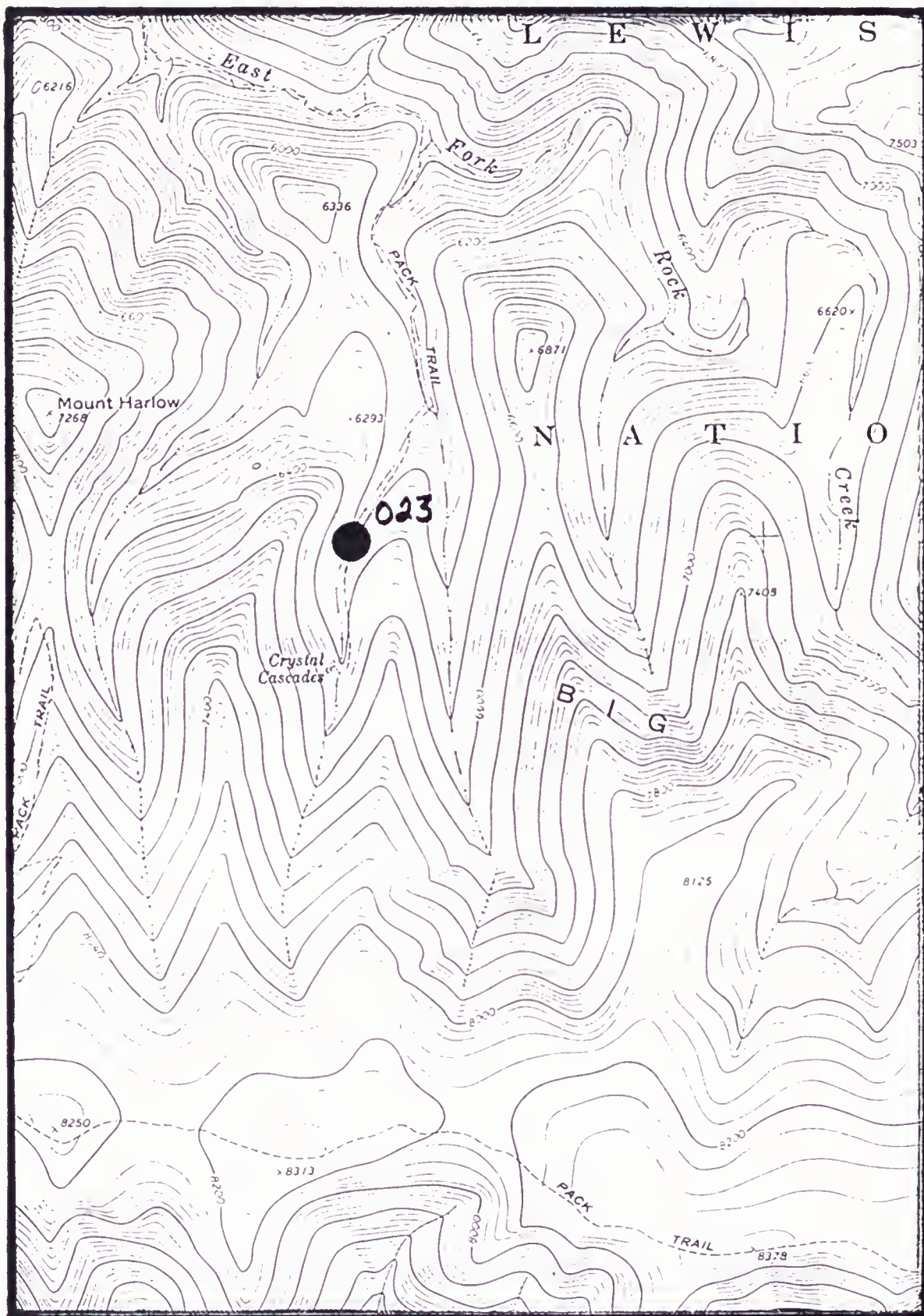
USGS Haymaker Narrows Quadrangle (7.5')



Goodyera repens

Dry Pole Canyon (022)

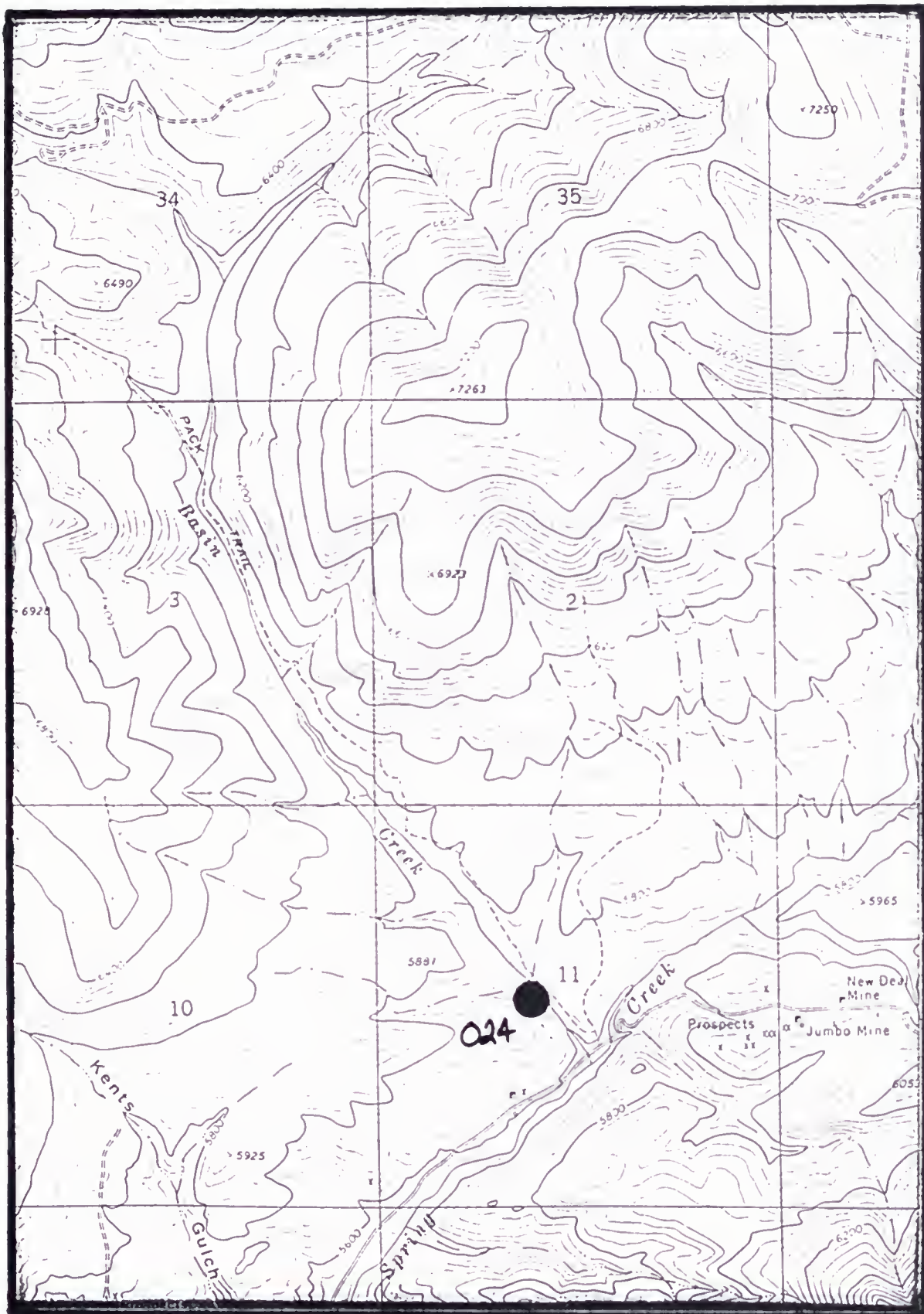
USGS Indian Hill Quadrangle (7.5')



Goodyera repens

Crystal Cascades (023)

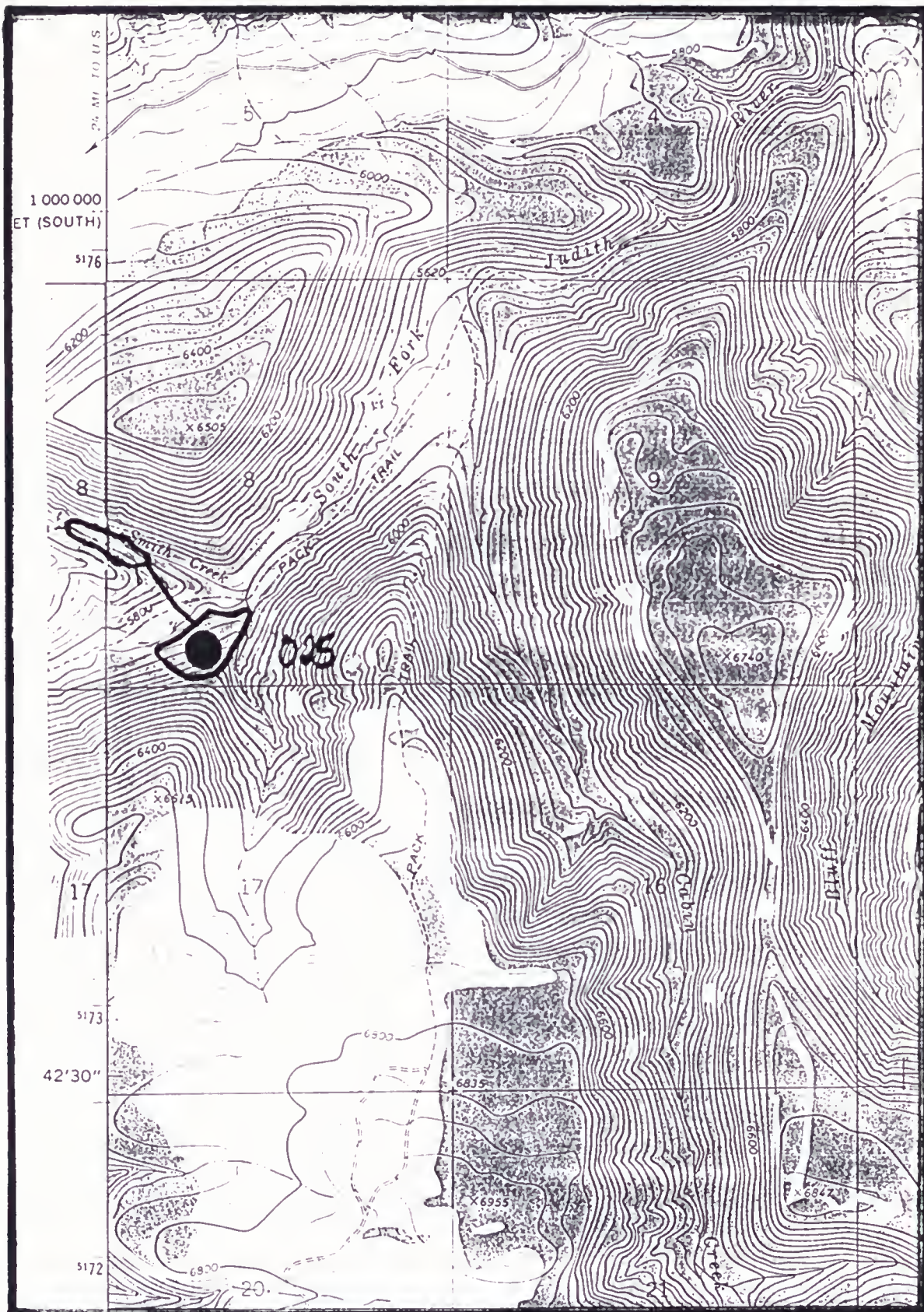
USGS Jumpoff Peak Quadrangle (7.5')



Goodyera repens

Basin Creek (024)

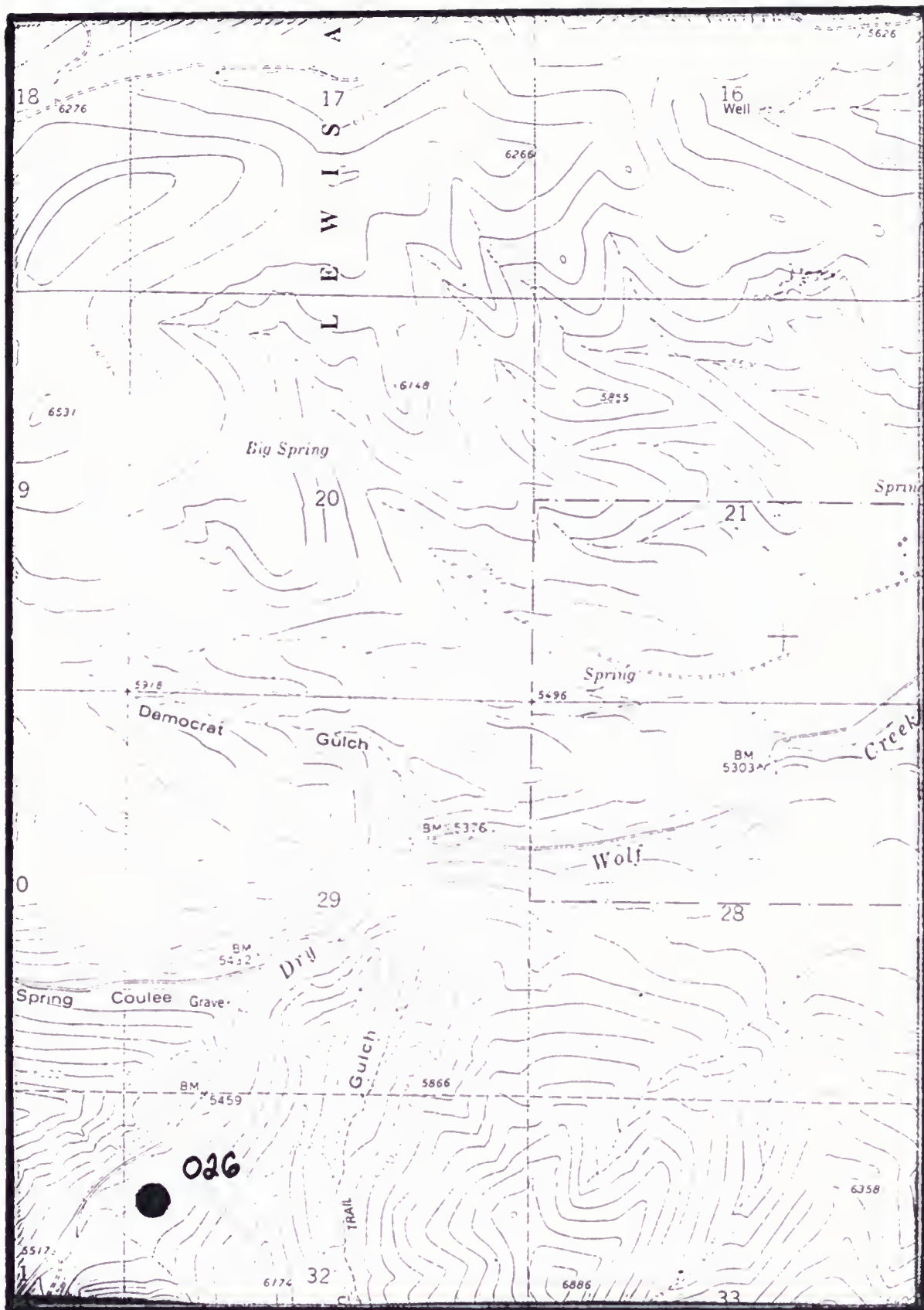
USGS Russian Flat Quadrangle (7.5')



Goodyera repens

Smith Creek (025)

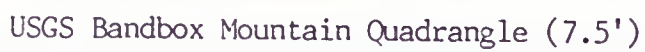
USGS Russian Flat Quadrangle
USGS Daisy Peak Quadrangle

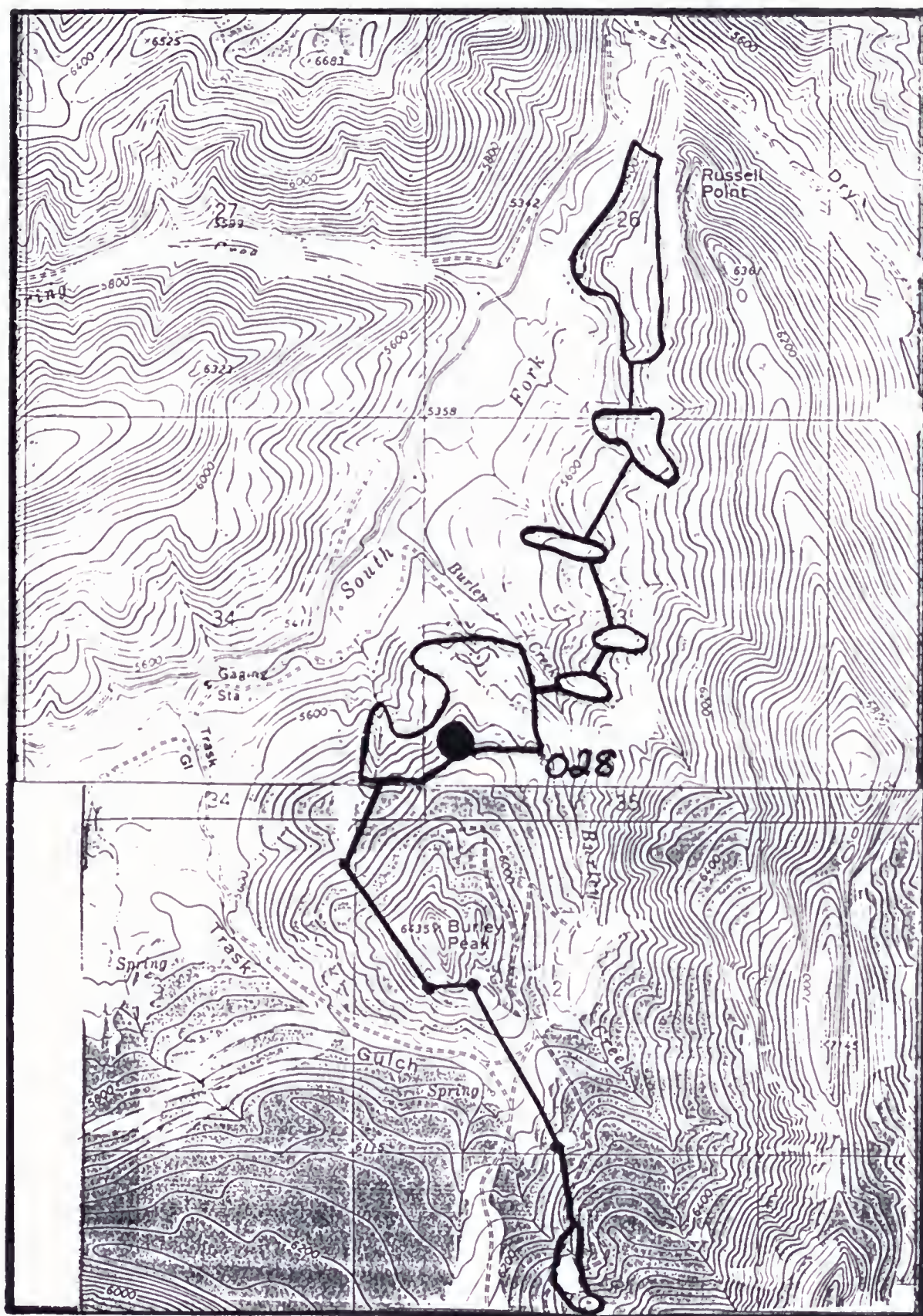


Goodyera repens

Dry Wolf (026)

USGS Wolf Butte Quadrangle

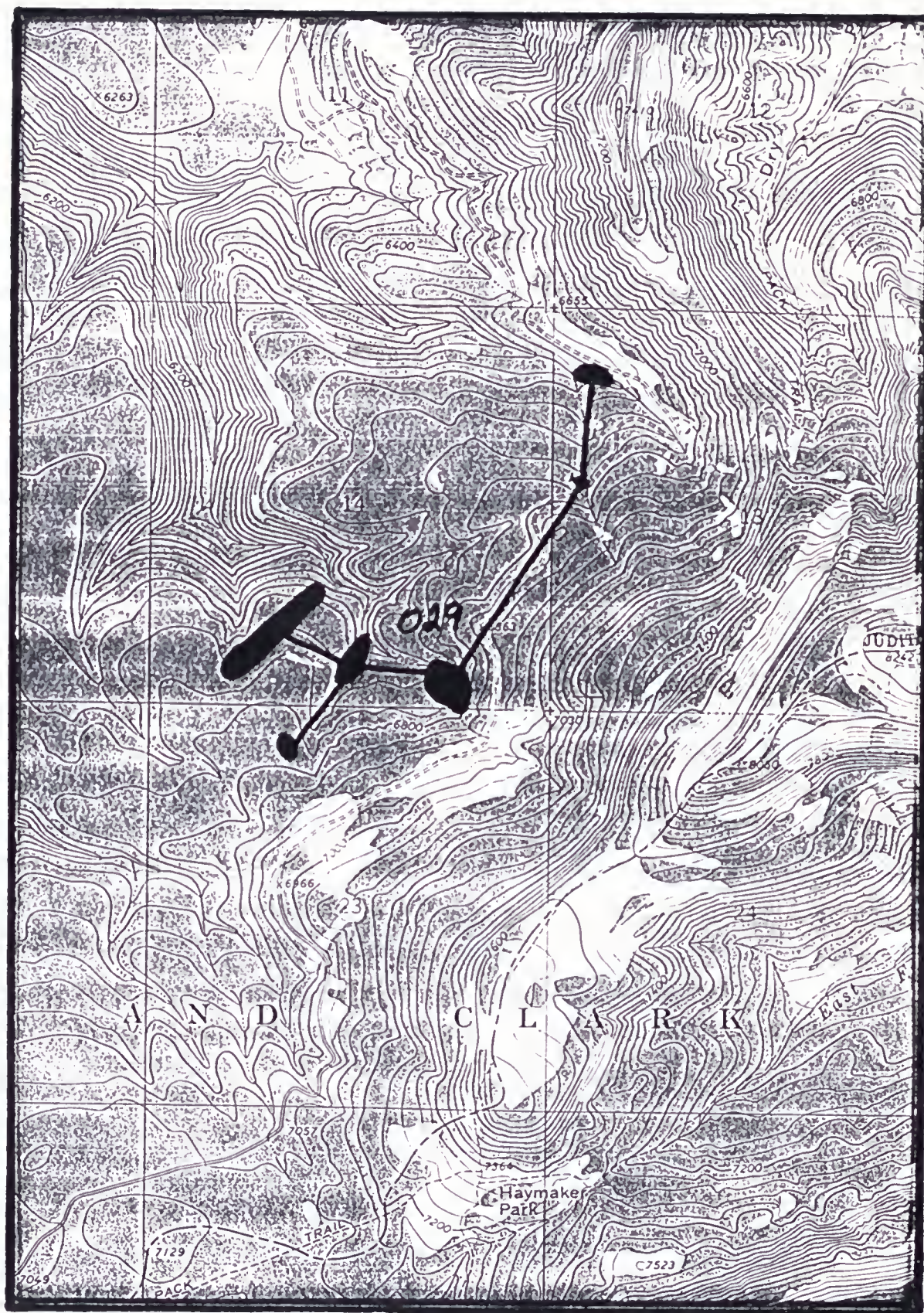




Gaultheria repens

Russell Point (028)

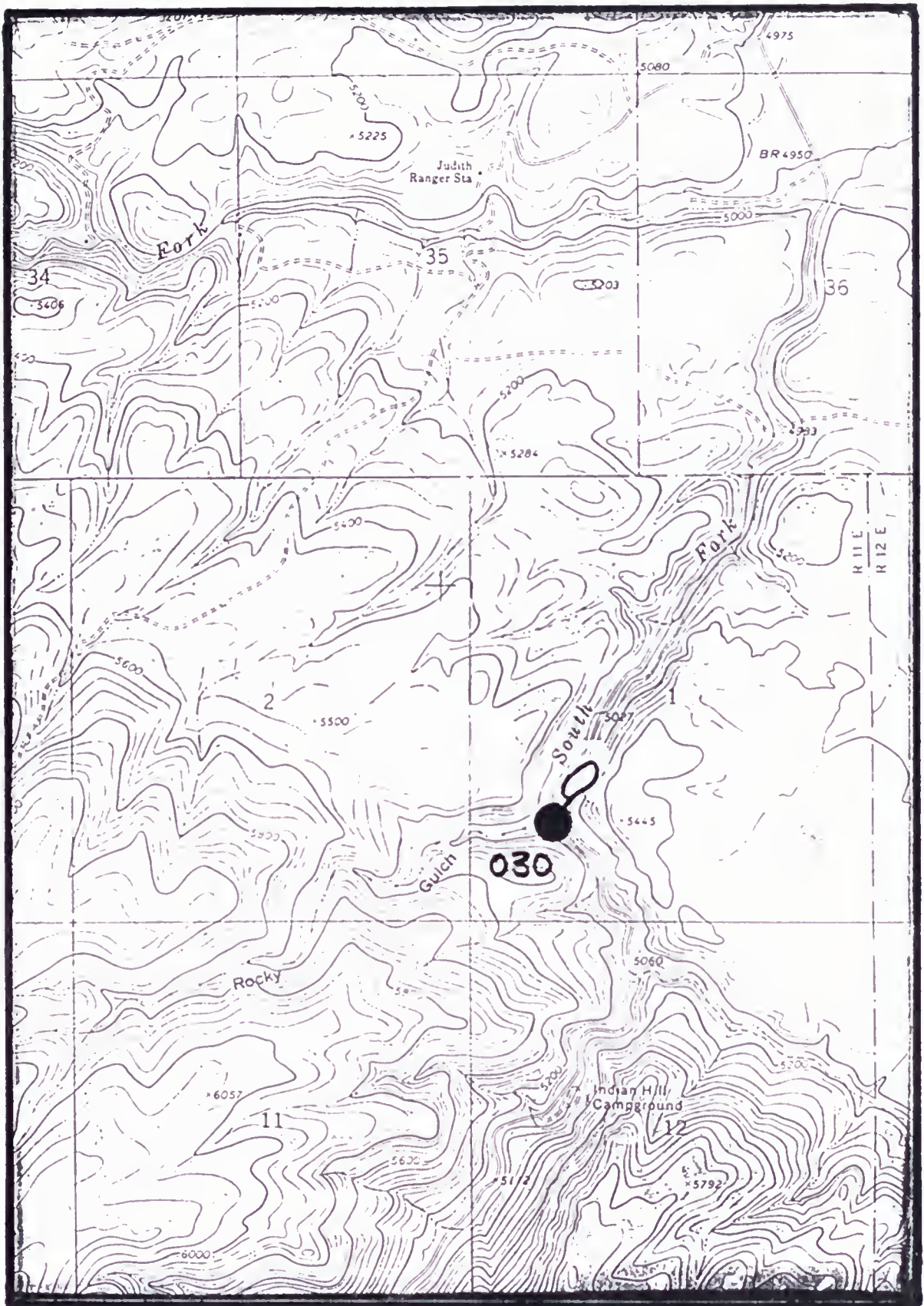
USGS Indian Hill Quadrangle (7.5')
USGS Daisy Peak Quadrangle (7.5')



Goodyera repens

Mount High (029)

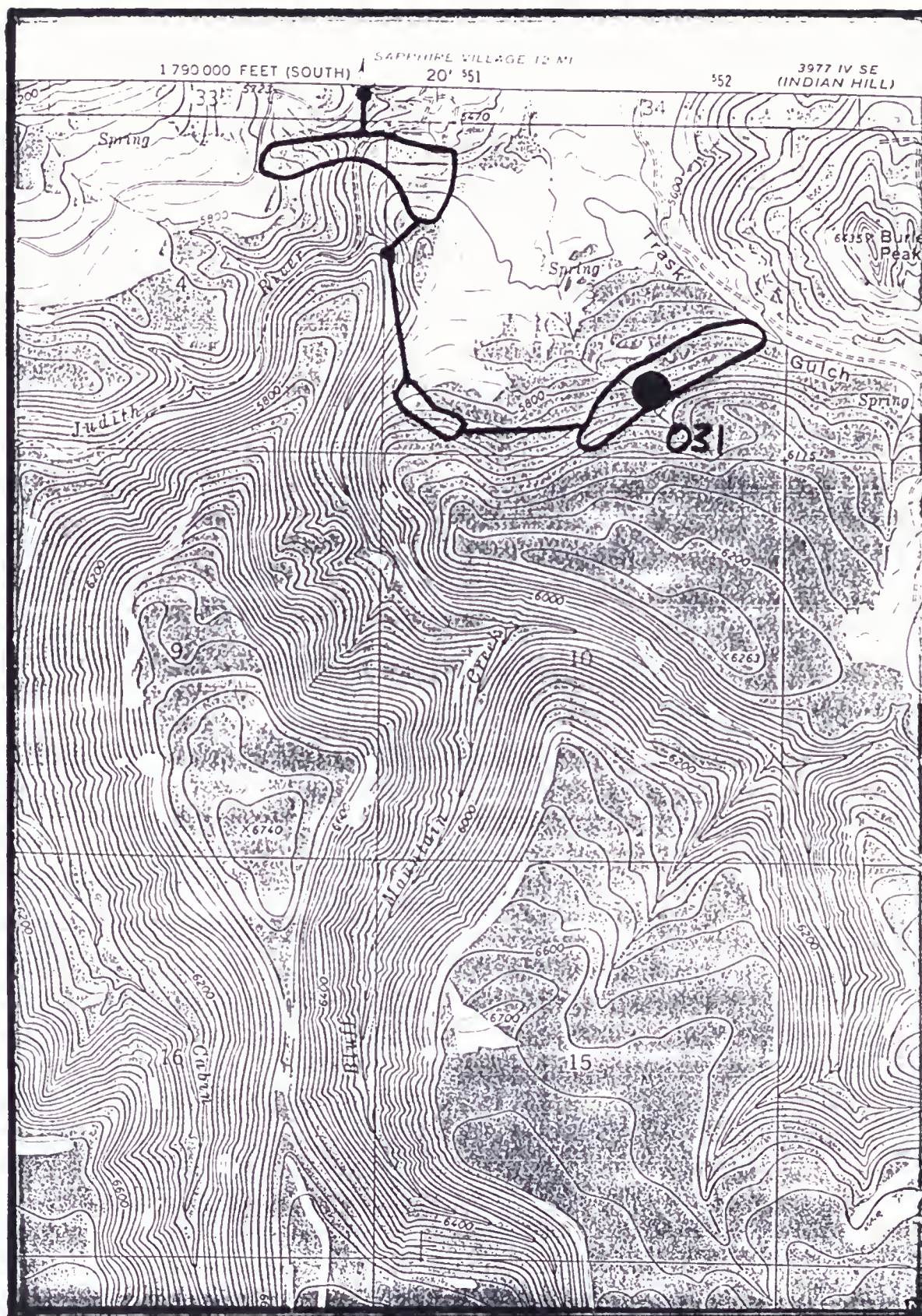
USGS Daisy Peak Quadrangle (7.5')



Goodyera repens

Rocky Gulch (030)

USGS Indian Hill Quadrangle (7.5')



Goodyera repens

Trask Gulch (031)

USGS Daisy Peak Quadrangle (7.5')

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